Distance Learning
Project North

Alberta
EDUCATION

ALBERTA CORRESPONDENCE SCHOOL
CURRICULUM SUPPORT BRANCH
AUGUST 1988

89-00382/

Project Participants

Alberta Education

Alberta Advanced Education

Alberta Government Telephones

ACCESS NETWORK

Computer Based Training Systems

Digital Equipment Corporation

North Peace Adult Education Consortium

County of Grande Prairie #1

East Smoky S. D. #54

Fairview College

Fairview RCSSD #35

Fairview S. D. #50

Falher S. D. #69

Fort Vermilion S. D. #52

Grande Prairie RCSSD #28

Grande Prairie S. D. #2357

High Prairie S. D. #48

Peace River #10

North Peace RCSSD #43

Spirit River S. D. #47

Technology, Research and Telecommunications

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1. Background

Distance education in Alberta has over a 60-year history. The Alberta Correspondence School (ACS) was formed in 1923 to address the needs of approximately 100 residents in remote areas of the province. Using the mail service, by 1946 this delivery system had established 643 correspondence education centres. In 1956, travel approval was given for teachers to visit students in rural areas. Today, the ACS has approximately 40,000 registered students with a course-student enrolment of 60,000 and an annual budget of approximately $8 million. While it can be seen that there has been considerable growth in the number of correspondence students in the past 60 years, **the primary delivery system has remained virtually unchanged (i.e., correspondence by mail) over this period.**

In this same period, the field of distance education has undergone considerable transformation. In the early stages, correspondence education was seen as a "second-best" alternative to classroom instruction, a view that remains prevalent in many areas of Alberta today. Over this period, there has been a gradual recognition that education at a distance can be accomplished effectively if attention is paid to the distance learning **needs** of the student and the development of a distance learning **system** that addresses these needs.

It was with this rationale that a *Task Force to Develop a Vision for the Alberta Correspondence School* was established by the Deputy Minister of Education in 1987. This Task Force produced a report entitled, *"Basic Learning at a Distance: Building New Partnerships"*, which identified the major issues requiring resolution and produced a number of recommendations for change in the operation of the ACS (see Appendix A).

Of particular significance was the recommendation to place responsibility for the **delivery of distance education with the jurisdictions** and to begin the transformation of the Alberta Correspondence School into an institution addressing **student learning at a distance**. On the basis of these recommendations and those from a study of small schools in the province, Alberta Education embarked in 1987 on a project entitled *Distance Learning in Small Schools*.

2. Current Situation

The *Distance Learning in Small Schools* project utilizes a mixed delivery system involving a teacher coordinator, local tutor markers, and curriculum materials from the Alberta Correspondence School. Students in 13 schools have access to an on-site teacher coordinator, and access to the teacher tutor markers through facsimile technology and telephone answering machines.

Small schools in other areas of the province continue to have difficulty in providing an equitable basic educational program. The Framework for a New School Act states that, "Regardless of where in Alberta students live, they should have access to comparable standards of basic education." Through the use of distance education, the education system **must** provide access to more equitable educational opportunities for all students regardless of location or circumstance. As a means of providing the best possible education for all Alberta students, the next area that Alberta Education has identified as a high priority for development is the **Distance Learning Project North.**

3. Rationale and Basic Principles

The basic problem facing small schools in the province is one of maintaining a range of program offerings in a cost-effective manner. With many small schools operating with fewer than 100 students distributed over three or more grades, a typical classroom might consist of one teacher instructing very few pupils. Clearly, the costs associated with traditional instruction in this context (i.e., a classroom with one teacher and few students) are prohibitive. An additional problem that small rural schools face is locating qualified instructional staff for the range of program offerings desired. **The challenge is then to find a way of providing an equitable educational program for students in small schools in a cost-effective manner.**

Through the use of distance education, the educational system in Alberta can provide an equitable and effective educational program for all students. The key is the development of a distance learning system that maximizes the resources that can be brought to bear on learning in a manner that is cost-effective regardless of the location or the learning circumstance of the student.

The design of the distance education learning system must ultimately demonstrate effectiveness in achieving the learning outcomes established by the province. At the same time, the distance learning system must be:

- student centred
- accepted by its prime users
- accessible
- immediate
- implementable
- adaptable
- manageable
- interactive

A coordinated future for a distance learning system in Alberta requires:

- a **long-term vision** or plan for the technological delivery of distance education
- a **support system** that is built on partnerships among Alberta Education, school systems and other agencies
- appropriately **designed curricular programs**
- effective **management systems** for monitoring and tracking student progress.

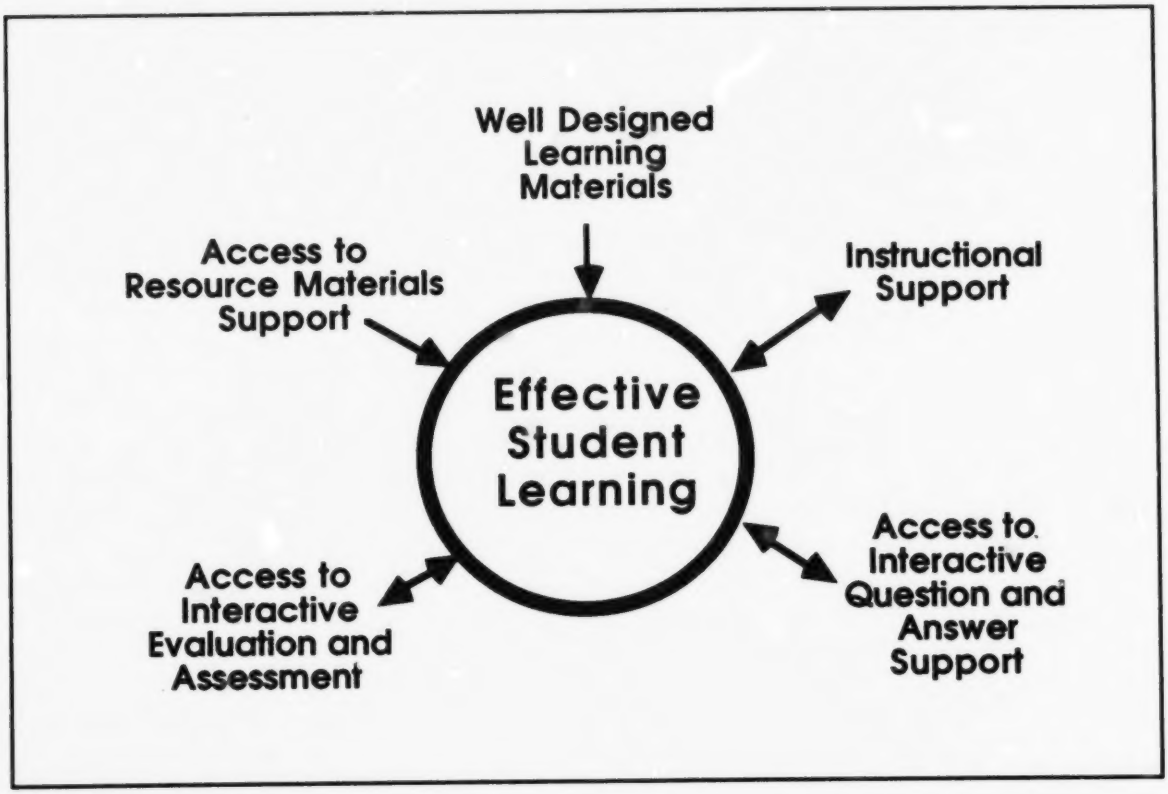
The **Distance Learning Project North,** described in the following sections, will establish a significant alternative to educational delivery in northwestern Alberta. This proposal provides for an alternative model to the *Distance Learning in Small Schools* project initiated by Alberta Education and capitalizes on other initiatives of government such as the Calgary Computer Managed Learning (CML) Math Project and extensive experience gained in teleconferencing/telewriting. Also central to the proposal is the involvement of private sector agencies seriously interested in the development and marketing of prototype distance education learning systems technology.

More significantly, **Distance Learning Project North** addresses the recommendations of the *Task Force to Develop a Vision for the Alberta Correspondence School (1987)* toward establishing a centralized program development and decentralized delivery approach to distance education. At the centre of the Task Force's recommendations, and this project, is a transformation of the future role and function of the Alberta Correspondence School.

4. Needs of the Distance Learner

Some aspects of the vision of the future for distance education have already been alluded to. **Conceptually all education, including a future distance educational system, should *focus on the student* and therefore on *learning*.**[1] The production of distance learning materials using various media (video, audio, software, etc.) must follow the principles of effective instructional design. The responsibility for the provision of distance learning services increasingly will reside with the school jurisdictions as is the case with traditional instruction. Technology will have a primary role in linking students with their tutors or instructors in managing well designed learning resources and enabling the instructional system to become more effective.

Conceptually, the student is the centre of this distance learning system with access to the necessary resources that promote effective learning. Therefore, access to well designed learning materials, resource materials support, instructional support when necessary, interactive question/answer support and evaluation would **all** be considered as components of an effective distance learning **system.**


Well Designed Learning Materials
Access to Resource Materials Support
Instructional Support
Effective Student Learning
Access to Interactive Evaluation and Assessment
Access to Interactive Question and Answer Support

1. The focus on the student is the primary emphasis of the new School Act (Bill 27).

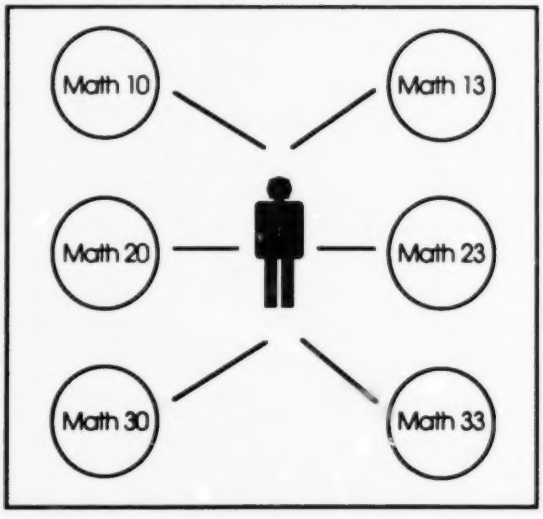
5. Solution Alternatives

A way must be found to establish a more cost-effective education program offering in small schools in the province. Conceptually, this can be accomplished in at least three ways.

One alternative, undertaken by the *Distance Learning in Small Schools* project, was to establish multi-grade and subject classrooms (i.e., classrooms composed of students from a variety of courses and grades). Generally, an on-site teacher intern/coordinator oversees the operation of the classroom and the students are linked to an off-site marker through facsimile and telephone answering technology. While this approach addresses the need for more program offerings, the on-site coordinator can experience difficulty in attempting to address questions in a range of subjects and grades. Facsimile and telephone answering technologies are used to link the students to the tutor markers and to experts in the subject area for instructional support. Recently, this project has added teleconferencing technology and satellite downloading of ACCESS NETWORK programs as a means of improving the instructional component and plans to add electronic mail to link students with their tutors.

A second approach is to aggregate a number of students from a similar program area with a teacher in a traditional classroom setting. An example of this direction might be a Grade 10 through 12 mathematics class which would result in a more cost-effective student/teacher ratio. A multi-grade classroom might offer instruction in different courses in one program area at any one time (e.g., Mathematics 10, 20, 30,13, 23 and 33).

Clearly, the teacher in this context cannot continue to use the lecture mode as the primary source of instruction. The solution is to mediate or design the learning materials so that much of the student learning can be teacher independent. The teacher then becomes more of a facilitator or individual who manages individual student learning rather than a presentor of class instruction. This approach also offers the opportunity to allow individual students to proceed at their own learning rates. Since students in this classroom might be in a variety of different grade levels and in different sections of a course, the teacher must be given assistance in the **management** of the students' progress. This model also necessitates the **redesign and development of a number of the correspondence courses** to enable the teacher to address the range of learning needs of a multi-grade classroom.



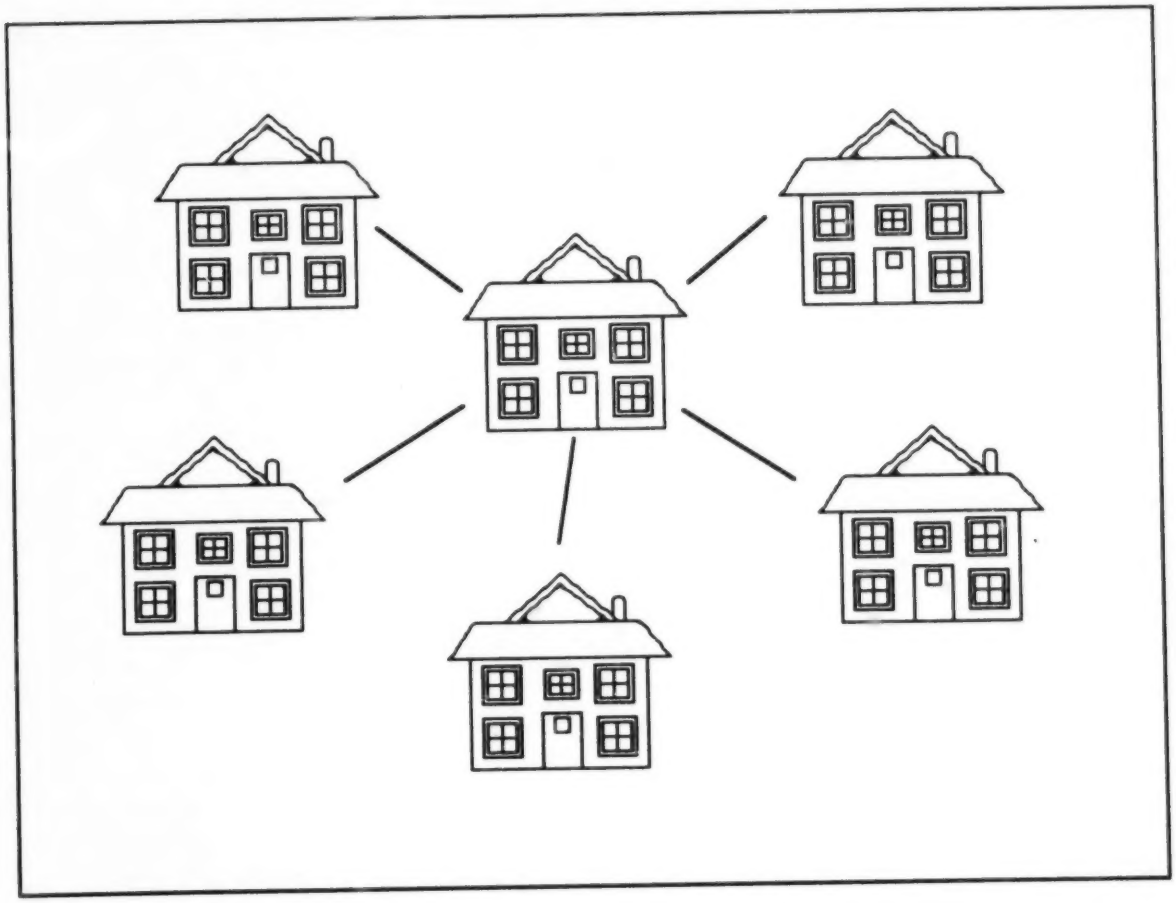
Over the past decade, Computer Managed Learning (CML) systems have shown to be effective in assisting the instructor in the management of heterogeneous groupings of students. From experience gained from a variety of initiatives in Alberta over the past

decade (e.g., the Q Math project in Calgary, the Emergency Medical Technician Ambulance training program, many SAIT programs) there is significant potential in using CML as a tool in assisting instructors in dealing with multi-grade groupings.

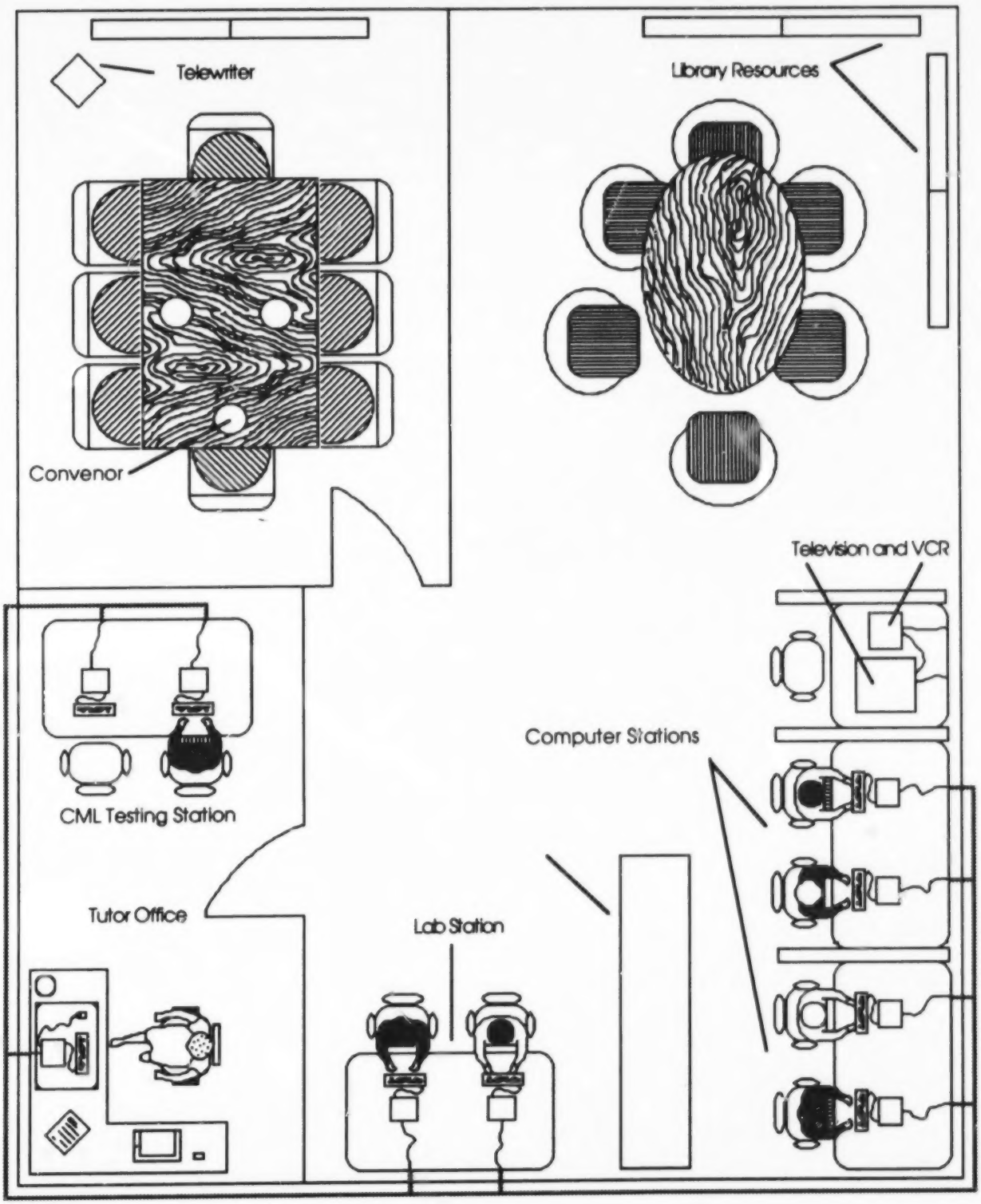
A third alternative is to link students using technology to a common instructor. In this way, although the individual student numbers in any one school may be small, the combined total student number would be far more cost-effective.

Graphically, this might appear as follows:

One successful method of linking students together in an instructional context is the use of teleconferencing technology. To meet the needs of education, the usual point-to-point telephone communications are modified to point-to-multi-point connections with the addition of a teleconferencing bridge. In this way, an instructor can be connected to a number of students at sites in other schools. In each of the schools, a low-cost convenor (microphone and speaker) allows the students to interact with other students and the instructor. Although audio teleconferencing offers the advantage of live two-way educational interaction, it is constrained by a



A Possible Distance Learning Facility



lack of a visual capacity. This lack of a visual capability can be overcome with the addtion of telewriter technology, telebroadcasting and video presentations.

Telewriter technology involves the addition of two-way graphical interaction with the addition of a microcomputer. In this way the teacher or students can either prepare visual images, or through a graphics tablet, sketch out educational issues as they talk.

Telebroadcasting can involve the use of a satellite to send one-way video and audio information of the instructor and learning events to the receiving sites. Teleconferencing technology then provides the opportunity for two-way audio interaction among the instructor and the students.

These forms of distance delivery are also less classroom oriented. Since a typical "classroom" might be from three to eight students, an alternative learning environment is desirable. This approach implies the development of a **multi-functional** learning centre environment which might be used for various courses and grade levels throughout the day. A classroom might be converted into a Distance Learning Centre with the addition of carrel units for study and video use, small areas for teleconferencing and a resource library, and possibly an individualized testing station. Although this facility might best be located in one area of the school, such as the school library, the facilities might also be located in different areas within the school.

6. The Distance Learning Project North Plan

To implement a distance learning system that provides a wider range of programs to small schools in a cost-effective manner, two distance learning models (i.e., multi-grade and multi-functional) will be explored which have potential to address both the range of program offerings and to establish a cost-effective student/teacher ratio. The objectives for the **Distance Learning Project North** are as follows:

1. Application and assessment of student-centred learning systems through alternative distance learning courseware formats.

2. Application and assessment of joint-venture partnerships.

3. Application and assessment of multi-grade and multi-program delivery systems.

4. Application and assessment of consortia distance learning delivery networks and distance learning centres/sites.

5. Application and assessment of diversified technology in the development and delivery of distance learning programs and services.

6. Recommendations for development and transfer of alternative education systems for distance education in the province.

To achieve these objectives, the **Distance Learning Project North** will have the following two major **components.**

A. Program Development

The **Distance Learning Project North** *will redesign/develop learning materials in high school mathematics for delivery in a multi-grade classroom environment.* As a

result of efforts by the two Calgary school jurisdictions, a major portion of the mathematics curriculum has been developed to operate on a Computer Managed Learning (CML) system. To address the needs of the multi-grade classroom or students at a distance, these materials will be updated and augmented with learning packages.[2]

B. Program Delivery

Ten sites for the **Distance Learning Project North** will be established to test the first stage of a distance delivery model. Each site will be composed of:

a. a **multi-grade level** environment in mathematics where teachers will coordinate the learning for students in a variety of mathematics course levels; and,

b. a multi-functional **learning centre** environment where instructors can link with students in a number of schools for instructional delivery in a variety of subject areas (e.g., physics, chemistry, French, mathematics, etc.). This environment will also provide access to tutorial support from the region or the Alberta Correspondence School through various telecommunications technologies.

7. Project Development

A. Program Development

One outcome of this project is the development of high-quality, self-contained, media-oriented learning/teaching packages for distance education delivery in Alberta. This set of materials is intended to facilitate the learning and teaching process, using the available technologies and a CML application, to provide courses and programs in low enrolment schools as well as for regular schools in the province.

The initial focus will be on the development of modular materials in the mathematics series (10-20-30; 13-23-33; 14-24; and 31), consisting of student support resources, instructional and evaluation instruments, and a Computer Managed Learning system. Senior high school mathematics has been deliberately selected as the prime focus because of the readily available materials and experience in CML in the Calgary Public School system. Implementation on an experimental basis for this project will thus be made easier.

Development of the mathematics materials will take place primarily through a contract involving the two Calgary jurisdictions. In July 1988, nine teams, each composed of three to four mathematics teacher/supervisors, began working on the materials development and the test items associated with each course offering. Computer Based Training Systems (CBTS) is assisting in the developmental process as it pertains to the CML system. The teams will analyze the existing test items from the Q math project and those from SAIT and other institutions including Alberta Education for possible inclusion in the test item data base.

Data entry support personnel will be available to provide support in the entry of

2. Learning packages are defined here as units of study that contain student learning materials including print, non-print, and possibly video or software. In some cases, teacher support materials may also be included.

the module study guides, test items and testing. These operators will be experienced with CML entry. Digital Equipment Corporation is providing the necessary computer equipment for the developmental phase of the project. Publishing houses are being contacted for the inclusion of portions of textual materials in the distance learning packages.

ACCESS NETWORK will work with the teams over the summer period in the acquisition/production of media support materials for the mathematics series.

In August, the Alberta Correspondence School will coordinate the production and publication of the mathematics materials. It is expected these materials will be available in early September for schools in **Distance Learning Project North**.

Design and development of distance learning resources may influence future course offerings. Classroom kits designed to meet the needs of low enrollment classes and schools are being assessed for application in the **Distance Learning Project North.** A package of physics material from British Columbia is being previewed for classroom inclusion. Preliminary reports are that these materials may be easily adapted to the Alberta curriculum and to the needs of low enrolment schools. A typical program package, or kit, may include print materials, audio and videotapes, computer software and other media materials. The objective of the program is to provide on-site, self-contained classroom/school kits that include a variety of learning resources, and that satisfy provincial curriculum objectives.

The materials also will provide for alternative learning/teaching strategies. Where appropriate, students will be presented with independent study guides and materials. Where useful, the student will be provided the answers or directions to find the answers and self-appraisal. It is expected that student assessment and evaluation will be provided through the CML system or submitted to a teacher/tutor locally in the district or centrally to the Alberta Correspondence School.

B. Program Delivery

A major intent of the project is to establish a cost-effective distance learning delivery system. One focus will be on the multi-grade delivery mode in mathematics where attention will focus on instruction to students in the multiple grade groupings. In the learning centre mode, the focus will be on linking the students at various sites with the instructor.

a. Multi-grade Approach

In this mode, a classroom will be composed of students from a number of grade levels in mathematics. To operate effectively in this environment, the teacher will require support in terms of management and assessment of student progress. A Computer Managed Learning (CML) system will be used to perform these functions with the developed mathematics course materials.

Each site will have available:

- One MicroVAX 2000 computer system with 4 Mb of memory
- One TK50 Tape Cartridge
- One RD53 (71 Mb) Disk Drive
- VMS and DECnet Software
- 2 VT320 Terminals
- One LN03+ Laser Printer
- One Modem
- Required Cabling

Each of these systems will contain the required CBTS-CML software, test item banks for the entire mathematics series, student course maps, and correlation charts referencing the learning support materials. In addition, Digital Equipment Corporation and CBTS will customize the system software to ensure that all MicroVAX's are "turn-key" systems. Local site requirements are access to power and tables/desks to support the computer, printer and terminals. A telephone line may also be available for intermittent connection to the modem for remote site maintenance.

Inservice and Coordination

A Distance Education Coordinator will be involved in both the development and delivery components of the project with primary responsibilities for delivery of the project during the 1988-1989 prototype year. The teachers using the systems, the school district liaison and the Distance Education Coordinator will be inserviced on the use of the system in a two-day session at a designated location in the region in late August. Following installation at the school sites, a one-day local inservice will be provided for both teachers and students in the program.

Ongoing problem support will be provided at three levels. Level one at the school site will involve assessment of minor problems. Level two at the regional level will involve contact with the Distance Education Coordinator. Level three will involve contact with CBTS, Digital or the Development Coordinator depending on assessment of the problem and necessary technical support.

b. Multi-functional Learning Centre Approach

To provide a range of needed course offerings outside the mathematics area, an alternative approach will be tested.

The school jurisdictions in the project have identified the following courses as also having high priority for distance delivery:

- Social Studies 10 and 13
- Physics 30
- Chemistry 30
- Biology 10, 20, and 30
- CALM 20
- French 10, 20, and 30
- German 10, 20, and 30
- Art 11, 21, 31
- Accounting 10, 20, and 30
- Business Education Programs

Course Redevelopment

Over the summer period, the ACS will focus on the augmentation of distance learning materials to address course needs. Program areas that offer ready adaptation and/or acquisition of support materials will have high priority and will be phased in throughout the project. These materials will be made available to those schools delivering the courses in a distance delivery mode. The courses that will be augmented for the **Distance Learning Project North** will be Social Studies 13 and possibly 10; Physics 10, 20, and 30; CALM 20; Accounting 10, 20, and 30. Courses available in the second semester will include Mechanics 12; Business Education 10, 20, and 30; Chemistry and Biology. Art 11, 21, and 31 will be available in September 1989.

These course offerings would also benefit from the addition of instructional support, access to question/answer support, and interactive assessment. To provide ongoing instructional support, a teleconferencing system will be used to link the teacher with students in a number of schools. Question/

answer, assignment and assessment support can be accommodated with the teleconferencing system, a simple electronic mail system among the school sites, and a low-cost facsimile system.

Teleconferencing/Telebroadcasting

Each of the school sites will require a teleconferencing convenor (microphones and speaker) to connect to the teleconferencing system. A portion of a learning centre or an area within the school could be dedicated to the use of this equipment for instructional purposes. The project will require one teleconferencing bridge to link the project schools together. The North Peace Adult Education Consortium has offered to provide teleconferencing space on a bridge in Peace River for daytime use.[3] To link each of the school sites to this "bridge", it is necessary to install telephone lines to each of the school sites for use of the teleconferencing system.

To enhance audio teleconferencing, a telebroadcasting component can be added to the system. This will enable receiving schools to "see" the instructor and learning events on television receivers. Teleconferencing provides the two-way audio interaction required for effective learning. Where necessary, satellite dishes will be installed to facilitate the delivery of a course in this manner in the second semester of the project year.

Facsimile

The recent significant price reductions in facsimile[4] equipment make this technology attractive as a means of transmitting information. Exams or assignments could very easily be transmitted among schools in the network or to the ACS. Each school will be provided with one facsimile machine to effect these communications.

Electronic Mail

Each of the schools in the project can be linked to the others via electronic mail. In this way, students in courses with instruction at a distance can have almost immediate access to their instructors to address questions and for assignment purposes. Rather than sending a document over the fax machine, with electronic mail, a student or instructor can send short messages to others on the system. This capability would be ideal for addressing student questions that occur at various times throughout the week. With this system a "turn-around" time of less than four hours will be effected. The MicroVAX stations will be enhanced to provide this function.

The Learning Centre

Ideally, a regular classroom can be established to facilitate the implementation of the distance learning system. This facility would

3. The teleconferencing bridge will have ten "ports" available for use by the schools during the daytime hours. In addition, a number of the telephone lines to this bridge are foreign exchange lines that will greatly reduce the long distance charges to the project.

4. Facsimile technology provides for the transmission of documents over a conventional phone line. A destination phone number is selected, the document is fed into the "fax" machine and then is sent and reprinted at the receiving site.

become the centre for distance learning and could house the necessary resources, teleconferencing/telewriting, a CML testing station, electronic mail, facsimile equipment and media resources. Each of the participating schools would be expected to provide the necessary space, furniture and power for this facility. Alternately, the participating schools may decide to establish other appropriate space throughout the school for the distance learning facilities. For example, a portion of the school library could be adapted to address distance learning needs.

Telecommunications

Telecommunications among the schools in the network will need to be established for teleconferencing/telebroadcasting, electronic mail and facsimile transmissions. Two telephone lines per school should be sufficient; one telephone line dedicated to teleconferencing/telebroadcasting applications and the other for facsimile transmission. With switching technology, the facsimile line can be shared with the electronic mail application.

Inservice and Coordination

Inservice and coordination are crucial components associated with the effective use of this approach to distance learning. It is important that the participating school jurisdictions meet early in the project to agree on common scheduling of target courses. The major inservicing of teachers and students will occur in the period immediately following the installation of the telecommunications equipment. Further design of these aspects will be primary responsibilities of the Distance Education Delivery Coordinator and others (e.g., the Development Coordinator, CBTS).

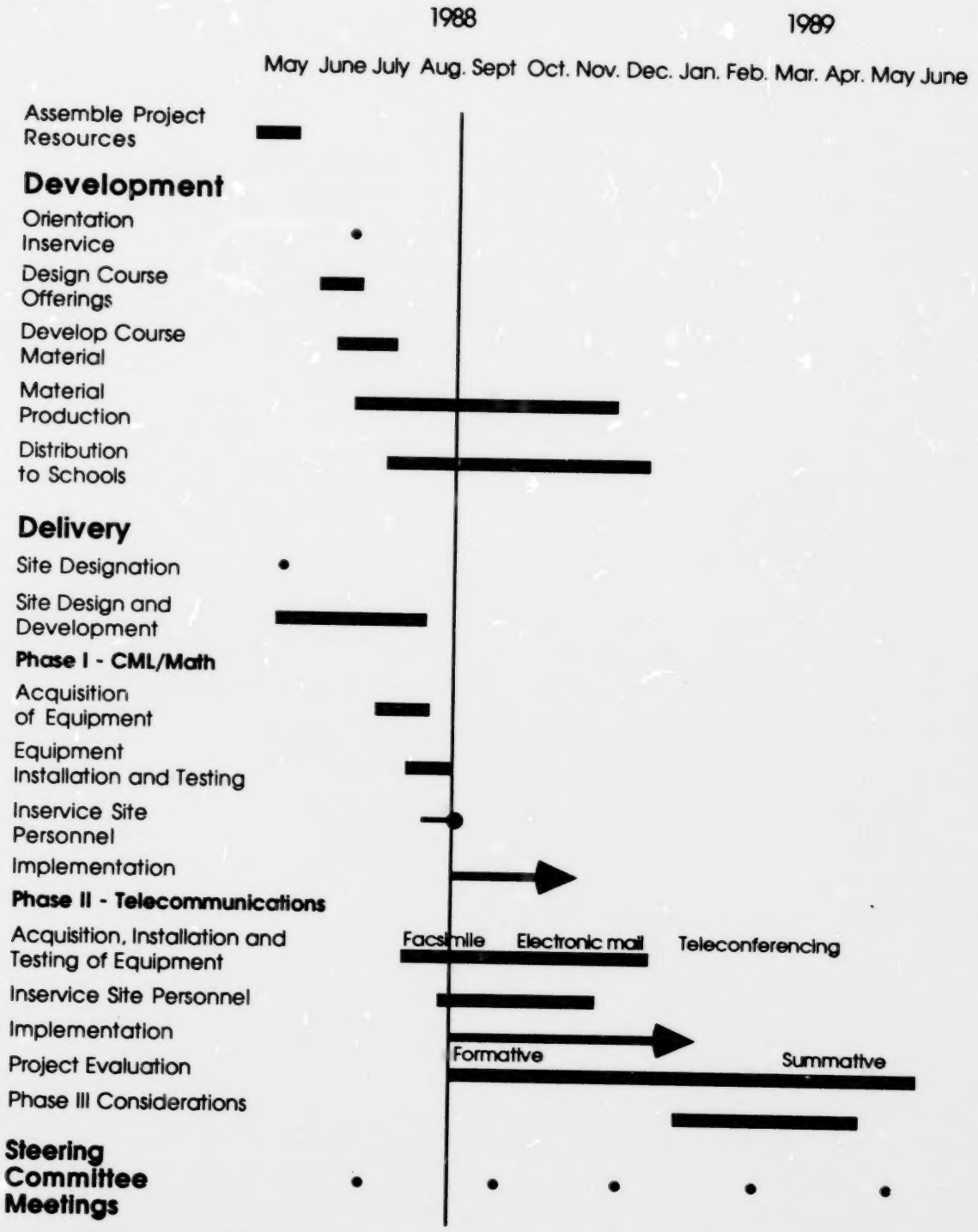
8. Project Implementation

The Distance Learning Project North has a number of critical milestones associated with it. The course development process has begun with emphasis on mathematics redevelopment and enhancement of the additional course offerings. It is expected that the mathematics courses and other program offerings will be available in early September, 1988, for the beginning of the school year.

Course delivery will also begin immediately with the final site designations, design and development. The telecommunications requirements for these sites should also be established in this early period. CML Equipment installation will proceed in early September with inservice occurring on request during August with formal inservice sessions on August 25 and 26. The facsimile and telecommunications technology will be installed by early September for connection to the ACS. The teleconferencing and electronic mail components will be phased in during the first semester. Implementation of the delivery component will be the major initial responsibility of the Distance Education Coordinator.

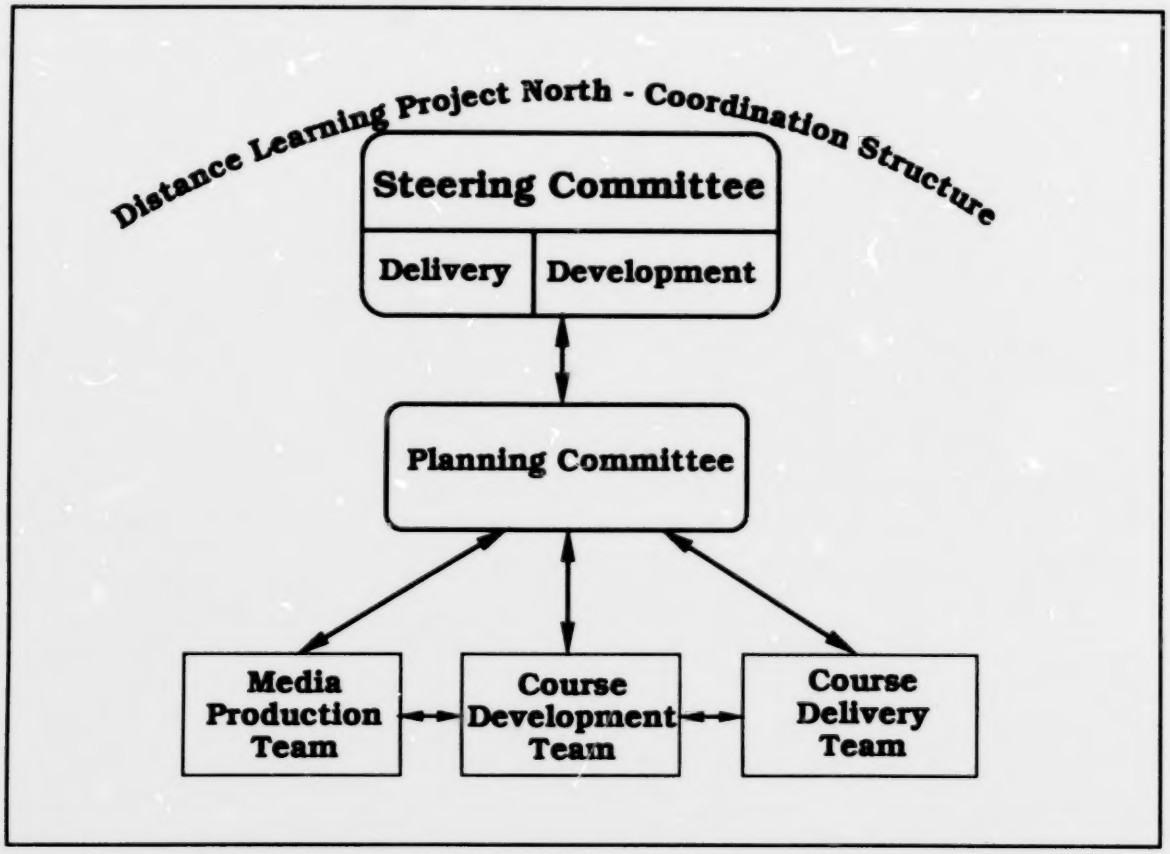
The formative evaluation of the project will be a major responsibility of the project sites and the Distance Education Coordinator. Summative evaluation will be conducted by the Planning and Policy Secretariat of Alberta Education.

Project Timelines



9. Project Management

Overall project management for the **Distance Learning Project North** will be **coordinated** through the following structure:



Overall planning and direction of the **Distance Learning Project North** will be carried out by the Director of the Alberta Correspondence School and by a steering committee consisting of the following stakeholders:

- School jurisdiction superintendents
- Alberta Education (Regional Offices and Curriculum Support Branch)
- Alberta Government Telephones
- Alberta Technology, Research and Telecommunications
- Digital Equipment Corporation
- Computer Based Training Systems
- ACCESS NETWORK
- Alberta Advanced Education
- North Peace Adult Education Consortium
- Others as appropriate.

Coordination of the project will occur at three levels. A project steering committee will be

formed to address policy issues and overall project matters. A planning team, composed of the chairpersons of the project's media production (ACCESS NETWORK), development and delivery teams, chaired by the Director of the ACS, will be formed to address day-to-day matters relating directly to the project's coordination. The development of the program materials and delivery systems will be completed by the media production, development and delivery teams.

The Director of the Alberta Correspondence School, Mr. G. Popowich, will chair the steering committee and be responsible for overall project management. The day-to-day activities associated with the development and delivery functions will be coordinated by Mr. E. E. Balay of the ACS in consultation with the project teams.

The mathematics development team will be chaired by Mr. G. Ditto from the Calgary Board of Education. Other members of the team will include the mathematics consultant, an instructional designer from ACCESS NETWORK, teacher authors from the ACS, system teachers, and the mathematics testing coordinator from Calgary. Additional expertise may be obtained from various technology support advisors (CBTS, Digital).

The delivery team will be chaired by the distance education coordinator and will include representatives from the Curriculum Support Branch, representatives from the consortium participants, the ACS, and perhaps private sector technical support members.

Mr. J. Travers will be involved in both the development and delivery project teams and will provide consultative advice to the Director of the ACS and the development and delivery coordinators.

10. Budget

A distance learning model will succeed over time only if a range of program offerings can be delivered at a cost that compares favourably with traditional education in the urban centres. The purpose of establishing the **Distance Learning Project North** is to demonstrate cost-effective alternatives to traditional delivery and thereby encourage school jurisdictions in Alberta to consider new approaches to education at a distance.

A number of agencies will contribute to the support of **Distance Learning Project North.** Alberta Education will contribute primarily to the program development and delivery components. The ACS will contribute to program development, production and distribution of the distance learning materials. The Digital Equipment Corporation will contribute to the project through the provision of computer systems for the CML delivery. The participating school jurisdictions will contribute staff time and facilities to the project. The regional offices will contribute space and support for the project's coordination.

A. Alberta Education Project Contribution

a. Program Development

The major costs associated with course development are involved in the contracting of school-based personnel in the Calgary area. The direct costs are as follows:

- Writing Team Coordinator and Test Item Specialist $25,000
- Writing Team (27 teachers @ $4,000) $108,000
- CBTS Training and Support $7,500
- CBTS Consulting on Development Team $22,750

- Publication and Copyright Approval $20,000
- Video Production and Duplication Costs $15,000
- Travel Expenses $5,000
- Data Entry Specialists (4@ $4,000) $16,000

Subtotal **$219,250**

b. Program Delivery

The technology costs will include purchase of teleconferencing convenors, satellite receivers, facsimile machines, etc. Digital Equipment Corporation will make a major contribution of computer hardware to the project. CML software will be acquired from CBTS. Operational costs for the project will include the long distance charges and support for the distance education coordinator. Schools participating in the **Distance Learning Project North** will contribute available space for the distance learning facilities, in-kind staff contributions and, if desired, an IBM XT personal computer.

- Teleconferencing convenors (10@$1,500) $15,000
- Facsimile equipment (10@$7,875) $78,750
- Educational telecommunications equipment $63,650
- Teleconferencing bridging (contribution of NPAEC) 0
- CBTS licensing fee 35,925
- CBTS consulting on delivery team $9,750
- Digital equipment technical support $40,000
- Long distance $20,000
- Telephone line rental $4,000
- Miscellaneous expenses $2,000
- Administration and overhead $2,500
- Distance education coordinator and expenses $60,000

Subtotal **$331,575**

B. Contributions by Other Agencies

a. Digitcl Equipment Corporation (DEC) Contribution

- 11 MicroVAX 2000 computer systems with 4 Mb of Memory
- 11 TK50 Tape Cartridges
- 11 RD53 (71 MB) Disk Drives
- VMS and DECnet Software
- 24 VT320 Terminals
- 13 LN03+ Laser Printers
- 15 Modems
- Required Cabling

Total Digital Contribution **$390,000**

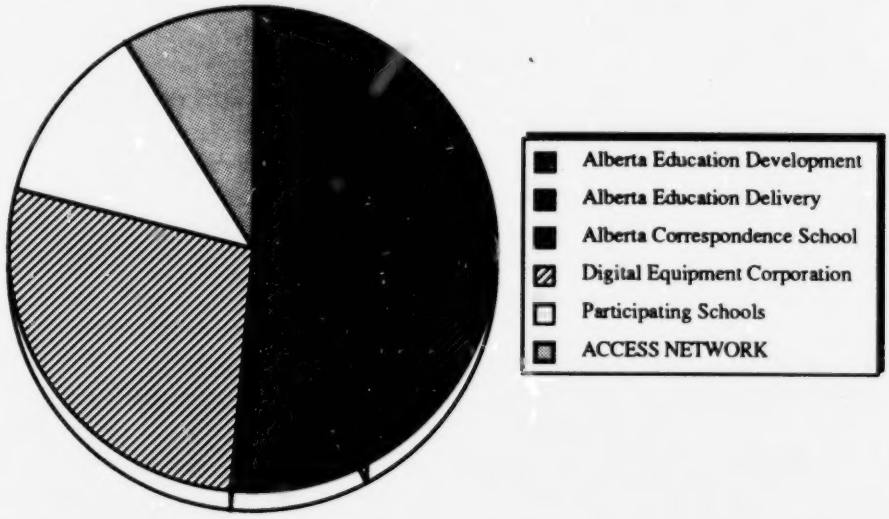
This contribution is for use of the computer equipment until July, 1989. Following successful completion of the project, the equipment will be available for purchase by the jurisdictions at a substantial discount.

b. Alberta Correspondence School Internal Contributions

- Project coordinator and expenses $40,000
- Math coordinator and expenses $14,000
- Math teachers (4@$4,000) and expenses $20,000
- Production and printing costs $30,000
- Enhanced distance delivery materials $20,000

Total ACS Contribution **$124,000**

Distance Learning Project North Contributions



c. Contributions per School Jurisdiction

• Supplies	$2,000
• Inservice for staff	$1,500
• School jurisdiction delivery liaison	$5,000
• Learning centre renovations (estimated)	$5,000
• Attendance at steering committee meetings	$2,000
• IBM XT personal computer or compatible (if desired)	$3,000
Total Contribution from Jurisdictions (10 sites)	**$185,000**

d. ACCESS NETWORK Contribution

ACCESS NETWORK will contribute the services of an instructional designer to the development team. As well, ACCESS NETWORK has agreed with Alberta Education's intention to earmark up to $100,000 of production pool funds for the acquisition and production of media materials. ACCESS NETWORK will also schedule broadcast time for the telebroadcasting portion of the project.

e. North Peace Adult Education Consortium

The North Peace Adult Education Consortium has agreed to provide access to a teleconferencing bridge and the FX lines to this bridge for daytime use.

11. Conclusion

Distance education in Alberta has experienced considerable growth since its inception in 1923. Today, the Alberta Correspondence School has approximately 40,000 registered students with a course-student enrolment of 60,000, yet the delivery system today remains virtually the same as at the inception of this service. As a result of changes in technology and the communications infrastructure in the province, the opportunity now exists to enhance the distance delivery system to these students.

The **Distance Learning Project North** offers the opportunity to pilot a number of new strategies for distance learning. One focus will be on a multi-grade mode of delivery and the redevelopment of the high school mathematics materials into modules. An additional focus will be on the establishment of a distance learning centre that address a variety of program needs of small rural schools and the augmentation of ACS courses to improve the quality of these offerings. The overall purpose of the project is to demonstrate a distance delivery alternative for small schools that is both cost-effective and provides a range of programs equivalent to the larger urban jurisdictions.

Appendix A

Conclusions of the Task Force on Distance Education

The **issues** identified by the Task Force were as follows:

1. **Reduced turnaround time:** Both the needs assessment and the literature review indicate that reduced turnaround time is one of the major factors in improving the quality of distance learning.

2. **Course delivery:** This issue is composed of three dimensions: first, the inadequacy of the postal service as the primary means of student interaction with the instructor; second, the use of a variety of technologies as instructional resources; and, third, the use of technology to enhance communication between students and instructors as well as among students.

3. **Student support services:** The student needs assessment surveys identify the establishment of study centres as the second most important need. Such study centres can provide multi-media library resources, counselling, tutoring, and pacing mechanisms necessary for effective distance learning.

4. **Course design:** Distance education, because of the separation of the learner and the instructor, requires well-designed learning materials that maximize the effectiveness of independent study. This is a crucial component of any distance learning system.

5. **Partnership:** Consistent with the relationship established between the department and the school jurisdictions in the Management and Finance Plan, local jurisdictions can be made equal partners in the delivery of instruction and support to distance learners.

6. **Equity:** Appropriately configured distance education facilities can allow schools to continue to offer the range of programs needed in all regions of the province. This issue is of particular importance to maintaining equitable educational opportunity in small or remote schools in the province.

Appendix A

Conclusions of the Task Force on Distance Education

(continued)

These issues then formed the basis of the Deputy Ministerial Task Force's **recommendations:**

1. **Philosophy:** That the Alberta Correspondence School consider change in its emphasis from "correspondence with its students" to the provision of decentralized distance learning services. This change should be reflected in a change in name to the Alberta Distance Education Centre.

2. **Distance Learning Centres:** That the major functions of the Alberta Correspondence School be centralized course design, and liaison with the Regional Learning Centres. That a network of regional Distance Learning Centres be established to coordinate and manage the delivery of services through existing school jurisdictions. School-based local centres may be established in partnership with other providers of educational services.

3. **Funding:** That school jurisdictions use appropriate portions of the SFPF and other grants to provide instruction and support for distancelearning students.

4. **Delivery and Support:** That new delivery alternatives such as teleconferencing, electronic mail, telephone tutoring, and media resources be integrated into the decentralized concept.

5. **Course Design and Development:** That a detailed analysis of current ACS course development procedures be undertaken with a view to developing a formal course design process that addresses the needs of the distance learner.

6. **Action Research Implementation Project:** That a three-year implementation pilot be undertaken in a selected region to:

   a. obtain feedback on the number and nature of school-based Distance Learning Centres required.

   b. develop an operational plan for province-wide implementation.

   c. examine funding issues for participating schools.

Appendix B

Participating School Jurisdictions

School Jurisdiction	School	Steering Committee Representative	Jurisdiction Delivery Liaison
Fairview S.D. #50	Worsley	Dave Allison	Neil Renneberg
East Smoky S.D. #54	Ridgevalley	Dave Thomas	Russ Zukewich
Spirit River S.D. #47	Savanna	Richard Welch	David Allston
Fort Vermilion S.D. #52	High Level	Ralph Winsor	Ralph Winsor
Peace River #10	Paul Rowe	Geoff Tagg	Stan Paulson
North Peace RCSSD #43	Glenmary	Tom Halbert	Peter Stubbs
Falher S. D. #69	Ecole Routhier	Jim Sheasgreen	Raymond Despins
High Prairie S.D. #48	Kinuso	Phil Matveyenko	Phil Matveyenko
Fairview RCSSD #35	St. Thomas More	Norm Blaskovits	Dean Rook
Grand Prairie S.D. #2357	Grande Prairie Comp.	Gerry Mazer	Gerry Mazer
Grande Prairie RCSD #28	St. Joseph	Dennis Grant	Patrick Maguire
County of Grande Prairie #1	Sexsmith Secondary	Jock MacNeill	Stephen Beagle

Distance Education Coordinator: Rik Hall

DISTANCE LEARNING PROJECT NORTH